

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2003UR039	<b>FOR FURTHER ACTION</b> <small>see Form PCT/ISA/220 as well as, where applicable, item 5 below.</small>	
International application No. PCT/US04/30669	International filing date ( <i>day/month/year</i> ) 20 September 2004 (20.09.2004)	(Earliest) Priority Date ( <i>day/month/year</i> ) 06 November 2003 (06.11.2003)
Applicant EXXONMOBIL UPSTREAM RESEARCH COMPANY		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the Report**

a. With regard to the language, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed.  
☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.  
☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☒ the text is approved as submitted by the applicant.  
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 2

- ☒ as suggested by the applicant.  
☐ as selected by this Authority, because the applicant failed to suggest a figure.  
☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/30669

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) : F25J 1/00; F02C 6/18, 6/00; F02G 3/00; F01D 15/10

US CL : 62/613, 611; 60/39.07, 39.05, 39.182, 39.3; 290/52

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 62/613, 611; 60/39.07, 39.05, 39.182, 39.3; 290/52

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
None

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,689,141 A (KIKKAWA et al) 18 November 1997 (18.11.1997), See entire document, especially column 6 lines 1-27.	1-11
Y	US 5,491,969 A (COHN et al) 20 February 1996 (20.02.1996), See entire document.	1-11
A	US 2001/0004830 A1 (WAKANA et al) 28 June 2001 (28.06.2001), See entire document.	1-11
A	US 6,463,740 B1 (SCHMIDT et al) 15 October 2002 (15.10.2002), See entire document.	1-11
A	US 6,393,867 B1 (GUILLARD) 28 May 2002 (28.05.2002), See entire document.	1-11
A	US 4,434,613 A (STAHL) 06 March 1984 (06.03.1984), See entire document.	1-11
A	US 2003/0074900 A1 (MCFARLAND) 24 April 2003 (24.04.2003), See entire document.	1-11
A	US 2002/0114985 A1 (SHKOLNIK et al) 22 August 2002 (22.08.2002), See entire document, especially paragraph 61.	1-11
A	US 2003/0052485 A1 (POTEET et al) 20 March 2003 (20.03.2003), See entire document.	1-11

☒ Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

11 January 2006 (11.01.2006)

Date of mailing of the international search report

16 FEB 2006

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US04/30669

## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,566,885 A (HAAK) 28 January 1986 (28.01.1986), See entire document.	1-11